

1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--GLASS FORMATION IN METALS OF ARSENIC CHALCOGENIDES AND RARE EARTH  
ELEMENTS -U-  
AUTHOR--(02)-BORISOVA, Z.U., SHKOLNIKOV, YE.V. S  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2), 383-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--RARE EARTH METAL, CHALCOGENIDE GLASS, SELENIDE, ARSENIC  
COMPOUND, MICROHARDNESS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1513 STEP NO--UR/0363/70/006/002/0383/0384  
CIRC ACCESSION NO--AP0120294  
UNCLASSIFIED

2/2

016

CIRC ACCESSION NO--AP0120294  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT. THE POSSIBILITY OF GLASS FORMATION IN MELTS OF SULFIDES OR SELENIDES OF AS WITH SULFIDES OR SELENIDES OF PR (ND) WAS STUDIED. ALL THE SAMPLES WERE PREPD. BY MELTING AS SUB2 SE SUB3 OR AS SUB2 S SUB3 WITH THE RESP. RARE EARTH CHALCOGENIDES IN EVACUATED QUARTZ AMPULS AT 900-1000DEGREES. THE EXPTL. D. AND MICROHARDNESS (AT 50-G LOADS) FOR THE MATERIALS PREPD. ARE TABULATED. INCREASING THE RARE EARTH METAL CONTENT IN THE MELTS WITH DECREASING COOLING RATE RESULTED IN PARTIAL CRYSTN. OF THE MELTS; THIS WAS ALSO SHOWN BY INCREASED D. AND ELEC. COND., AND A DROP IN MICRO HARDNESS. CRYSTN. AND PHASE SEPN., WERE OBSERVED IN THE SULFIDE MELTS; ON GOING FROM THE SULFIDE TO THE TELLURIDE MELTS THE GLASS FORMATION REGION DECREASES SHARPLY. ALTHOUGH ONLY THE GLASS FORMATION OF CHALCOGEN-AS MELTS CONFG. ONLY PR OR ND WAS STUDIED, SIMILARITY IN CHEM. PROPERTIES OF LANTHANIDE GROUP ELEMENTS SUGGESTS THAT ANALOGOUS PHENOMENA WILL BE OBSERVED FOR MOST OF THE OTHER RARE EARTH ELEMENTS. THIS ASSUMPTION REMAINS TO BE EXPTL. VERIFIED.

FACILITY: LENINGRAD. GOS. UNIV.  
IM. ZHJANOVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 621.165.539.4

SHESHENEV, M. F., Candidate of Technical Sciences, and SHKOL'NIKOVA, B. E.,  
and SAMARINA, N. N., Engineers, All-Union Institute of Heat Engineering and  
Central Scientific Research Institute for Heavy Machine Building

"Use of Type-15Kh12V2K2MF 12% Chrome Steel for Turbine Blades"

Moscow, Teploenergetika, No 5, 1972, pp 74-76

Abstract: It has been found that the main reason for rupture of turbine blades is vibration fatigue resulting from the operation of the blades in resonant modes. This work presents the results of the study of the metal of two 0.5-t pilot-scale melts of E1756K steel, containing 0.13-0.16% C, 12.3-12.6% Cr, 0.66-0.73% Mo, 1.8-2.04% W, 0.34% V, 1.7% Co, 0.35-0.42% Si, 0.89-0.76% Mn, 0.06-0.015% S, and 0.017-0.024% P. Heat-treated rods 30 mm in diameter were tested. The properties of the material were found to be quite promising for the manufacture of turbine blades. The steel has good heat resistance and fatigue characteristic at 600°C. The long-term strength over 10,000 hours is 17-18 kg/mm<sup>2</sup>, 100,000 hours--14 kg/mm<sup>2</sup>. The minimum relative elongation in long-term rupture was 9%. The creep limit at this temperature for a deformation rate of 1% in 10<sup>5</sup> hr is about 7.5 kg/mm<sup>2</sup>. The fatigue limit at 600°C with a symmetrical loading cycle is 24 kg/mm<sup>2</sup> for smooth specimens, 15 kg/mm<sup>2</sup> for notched specimens (10<sup>3</sup> cycles). The attenuation decrement at 600°C is approximately twice that at 200°C.

1/1

1/2 017 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--CRYSTAL CHEMICAL DATA ON CHELATE COMPOUNDS OF N SUBSTITUTED  
DERIVATIVES OF SALICYLALDIMINE. VII. CIS OCTAHEDRAL STRUCTURE OF  
AUTHOR--(03)-SHKOLNIKOVA, L.M., OBODOVSKAYA, A.YE., SHUGAM, YE.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 54-61  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ZINC COMPLEX, CRYSTAL LATTICE, X RAY STUDY, LEAST SQUARE  
METHOD, METHOXY COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1987/0409 STEP NO--UR/0192/70/011/001/0054/0061  
CIRC ACCESSION NO--AP0104041  
UNCLASSIFIED

2/2 017

CIRC ACCESSION NO--AP0104041  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT. ZINC SALICYLAL,O,ANISIDINATE (BIS(O,(N,(O,METHOXYPHENYL)FORMIMIDOYL) PHENOLATO)ZINC) WAS INVESTIGATED BY X RAY ANAL. THE PARAMETERS OF THE MONOCLINIC LATTICE ARE: A EQUALS 12.727 PLUS OR MINUS 0.004, B EQUALS 12.552 PLUS OR MINUS 0.004, C EQUALS 14.806 PLUS OR MINUS 0.005 ANGSTROMS, BETA EQUALS 94.1 PLUS OR MINUS 0.2 DEGREES, ZETA EQUALS 4, AND THE SPACE GROUP IS P2 SUB1-C. THE STRUCTURE IS DETD. BY THE HEAVY ATOM METHOD OF A 3 DIMENSIONAL DISTRIBUTION OF ELECTRON D. (6 CYCLES OF SUCCESSIVE APPROXNS.) AND IS MADE MORE PRECISE BY THE METHOD OF LEAST SQUARES IN ISOTROPIC APPROXN., R EQUALS 13.6 PERCENT. ANOMALOUS PHYS. AND CHEM. PROPERTIES OF THE COMPLEX ARE CONNECTED WITH A SHARING IN THE COMPLEX FORMATION OF MEO ATOMS OF O AND WITH AN INCREASE OF DENTATICITY OF THE LIGAND BECAUSE OF THIS. AS A RESULT OF THE FORMATION OF AN ADDNL. INNER COMPLEX BOND OF ZN AND O (METHOXYL) THE TETRAHEDRAL COORDINATION OF THE ZN ATOM CHANGES TO CIS OCTAHEDRAL WITH PRESERVATION OF THE SYMMETRY OF THE POLYHEDRON C SUB2. EACH HALF OF THE MOL. REPRESENTS A SYSTEM OF 4 CONDENSED RINGS: 2 METAL RINGS AND 2 AROMATIC RINGS. THE INTERAT. DISTANCES IN THE COORDINATED OCTAHEDRON ARE ZN AND O EQUALS 1.965 AND 1.980, ZN AND O EQUALS 2.046 AND 2.049, ZN AND O (FROM MEO GROUP) EQUALS 2.405 AND 2.406 ANGSTROMS. THE BOND LENGTHS BETWEEN THE LIGHT ATOMS HAVE THE NORMAL VALUES AND CONFORM WELL TO ANALOGOUS DATA FOR RELATED COMPODS.

UNCLASSIFIED

USSR

UDC 681.142.323

SERGUSHOV, YU. D., ~~SIKOL'NIKOV, I. A.~~, Active Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications imeni A. S. Popov

"Utilization of a Quantizing Cathode Ray Tube for Conversion of Wide Band Signals to Digital Code"

Moscow, Radiotekhnika, Vol 27, No 1, 1972, pp 92-95

Abstract: A study was made of the errors of an analog-to-digital wide-band signal converter executed from a quantizing cathode ray tube. A cathode ray tube having the following basic technical characteristics was considered: number of quantization levels -- 15; collector current -- 1 milliamp; sensitivity with respect to deviation 6 volts per quantization level; output capacitance of the collectors 3 picofarads. The functional schematic of the analog-to-digital converter based on the quantizing cathode ray tube and the static amplitude characteristic of 3 channels of the quantizing cathode ray tube representing the dependence of the load voltage connected to each of the collectors on the magnitude of the deflecting voltage are presented. Formulas are derived for calculating the dispersion of the signal distortion, and the results are plotted as a function of the parameters of the converter. The

1/2

USSR

SERGUSHOV, YU. D., et al., Radiotekhnika, Vol 27, No 1, 1972, pp 92-95

quantizing cathode ray tube with the indicated parameters can be used for conversion of wide band signals (with a band of about 2-3 megahertz) without further complication of the system to eliminate coding ambiguity.

2/2

- 43 -

USSR

UDC 616-001.34-06:616:71]-036.868

SOKOLIK, L. I., and ~~SHKONDIN~~, A. N., Medical Institute Voroshilovgrad

"Dynamics Changes in the Skeleton during Vibration Sickness and Their Association with the Nature of the Patient's Working Environment"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, Jul 70, pp 28-30

Abstract: X-ray studies of the bones and joints of 222 patients afflicted with vibration sickness are discussed. Pathological changes in the skeleton were noted in all of the patients, and an advanced stage was recorded in 23%. The patients were divided into groups according to their working environment: those staying on at their regular jobs (where they had been using vibration equipment and continued to do so); those who were temporarily transferred; and those who had been permanently removed from jobs involving exposure to vibration. The degree of the degenerative-dystrophic processes for the three groups was compared. It is recommended that x-ray data be included as a basis for determining preventive measures to be taken in connection with vibration sickness.

1/1

- 63 -



USSR

UDC 591.553.5:001.1

SHKORBATOV, G. L., Department of Biology, Khar'kov State University

"Principal Features of Adaptations of Biological Systems"

Moscow, Zhurnal Obshchey Biologii, Vol 32, Mar/Apr 71, pp 131-142

Abstract: Modern definitions of adaptations and the methods of their classifications are analyzed. Taking a systemic approach to the problem, the author defines adaptation as the sum of all reactions taking place in a living system and preserving its functional stability in a changing environment. Three kinds of adaptations are distinguished in accordance with the three main types of biological systems: 1) adaptations of cenogenetic systems (biocenoses); 2) adaptations of phylogenetic systems (populations, species); and 3) adaptations of ontogenetic systems (organisms; including suborganic and subcellular adaptations). Processes leading to functional optimization and stability in both living and nonliving systems are analyzed, and their significance as the basis of adaptations developing in biological systems on different organizational levels is pointed out. The suggestion is made to expand J. Barcroft's formula "Any adaptation is integration" to "Any adaptation is integration and optimization of functions."

1/1

172 033  
UNCLASSIFIED  
TITLE--DAMPING OF CRITICAL VIBRATIONS AND DIELECTRIC LOSSES IN  
DISPLACEMENT TYPE FERROELECTRICS -U-  
AUTHOR--(03)-BALAGUROV, B.YA., VAKS, V.G., SHKOVSKIY, B.I.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TVERD. TELA 1270, 12(1), 89-99  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--DIELECTRIC LOSS, ACOUSTIC DAMPING, PHONON INTERACTION, IDEAL  
CRYSTAL, FERROELECTRIC CRYSTAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1990/0097  
CIRC ACCESSION NO--AP0048389  
STEP NO--UR/0181/70/012/001/0039/0099  
UNCLASSIFIED

S

2/2

033

CIRC ACCESSION NO--AP0048389  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--18 SEP70

ABSTRACT. FOR DISPLACEMENT TYPE FERROELECTS., ANHARMONIC DAMPING WAS CONSIDERED OF CRIT. VIBRATIONS WITH YIELDS  $K$  EQUALS 0 AND DIELEC. LOSSES AT TEMPS. ABOVE THE TRANSITION POINT. THE MAIN CONTRIBUTION TO LOW FREQUENCY DAMPING IS MADE BY INTERACTIONS OF CRIT. PHONONS WITH EACH OTHER AND WITH ACOUSTICAL PHONONS. EXPLICIT EXPRESSIONS ARE GIVEN FOR THE MOST IMPORTANT CONTRIBUTIONS TO DAMPING IN TERMS OF THE COEFFS. OF DIELEC. NONLINEARITY, ELECTROSTRICTION, AND THE PARAMETERS OF THE LOW FREQUENCY SPECTRA. IN THE IDEAL CRYSTALS CONSIDERED, THE CRIT. VIBRATIONS ARE ONLY WEAKLY DAMPED, AND LOSSES ARE SMALL. COMPARISON WITH EXPT. GIVES AGREEMENT WITH SRIO SUB3 AND DOES NOT CONTRADICT THE DATA ON KTAO SUB3. IN BATIO SUB3, THE CALCD. DAMPING IS LESS THAN THE OBSD.

USSR

UDC 622.235.004.15:336.4

SAFONOV, L. V., and SHKREBA, O. P., Scientific Research Institute of Problems of the Kursk Magnetic Anomaly, Academy of Science USSR, Ministry of Nonferrous Metallurgy USSR

"Probability Method of Estimating the Seismic Effect of Industrial Explosions"

Veroyatnostnyy metod otsenki seysmicheskogo effekta promyshlennykh vzryvov, Moscow "Nauka", 1970, 64 pp, illus, 22 item biblio, 1,000 copies printed

Abstract: Discusses methods of computing seismic effects of explosions on buildings, underground mining facilities and the slopes of the sides of mining shafts on the basis of the statistical nature of the external effects and the stability of the structures. Rational economic reliability requirements are established for drilling and blasting operations, and practical examples of calculations are given. The monograph is designed for use by technical personnel in both theoretical and practical work and students in the mining and construction VUZ.

- |         |  |         |
|---------|--|---------|
| Chapter | I. Empirical and Theoretical Distributions of the "Specific Intensity of the Vibrations" | 5 - 33  |
| Chapter | II. Computing the Seismic Effects on Engineering Structures                              | 33 - 56 |

1/2

USSR

SAFONOV, L. V., and SHKREBA, O. P., Moscow "Nauka", 1970, 64 pp illus,  
22 items biblio, 1,000 copies printed

Chapter III. The Engineering-Economic Basis of the Optimum  
Level of Reliability

57 - 62

2/2

- 28 -

USSR

UDC 615.28:547.722/.724).012.1

ZELIKMAN, Z. I., KUL'NEVICH, V. G., SHKREBETS, A. I., PERSHIN, G. N.,  
MIKERINA, A. L., Krasnodar Polytechnical Institute, USSR Institute of  
Chemical-Pharmaceutical Scientific Research imeni S. Ordzhonikidze, Moscow

"Synthesis and Germistatic Activity of Several 5-Substituted 2-( $\alpha$ -furyl)-  
1,3-dioxanes"

Moscow, Khimiko-Farmitssevticheskii Zhurnal, Vol 7, No 11, Nov 73, pp 25-27

Abstract: 2-( $\alpha$ -furyl)-5-ethyl-5-nitro-1,3-dioxane, 2-( $\alpha'$ -methylfuryl- $\alpha$ )-  
5-ethyl-5-nitro-1,3-dioxane, 2-( $\alpha'$ -bromofuryl- $\alpha$ )-5-ethyl-5-nitro-1,3-  
dioxane and 2-( $\alpha'$ -indofuryl- $\alpha$ )-5-ethyl-5-nitro-1,3-dioxane were synthesized  
and identified using IR and UV spectrophotometry and elemental analysis.  
The biological activity of these compounds and six others -- 2-( $\alpha'$ -nitro-  
furyl- $\alpha$ )-5,5-dimethyl-1,3-dioxane, 2-( $\alpha'$ -nitrofuryl- $\alpha$ )-5-ethyl-5-methylol-  
1,3-dioxane, 2-( $\alpha'$ -nitrofuryl- $\alpha$ )-5-methyl-5-methylol-1,3-dioxane, 2-( $\alpha'$ -  
nitrofuryl- $\alpha$ )-5,5-bis-(chloromethyl)-1,3-dioxane, 2-(furyl- $\alpha$ )-5-methyl-5-  
methylol-1,3-dioxane, and 2-( $\alpha'$ -bromofuryl- $\alpha$ )-5-ethyl-5-methylol-1,3-  
dioxane -- was tested against various microorganisms. It was noted that the  
addition of bromine, iodine, and especially the nitro-group the furyl ring  
enhanced, while addition of the methyl group lessened physiological activity  
of the compounds.

1/1

- 58 -

USSR

UDC 621.357.12:661.418(088.8)

EBERIL', V. I., YELINA, I. N., SHKRED, V. V., TSEYTLIN, R. I., YURKOV, L. I.,  
GURVANOV, L. S., KORYAGIN, V. I., PANCHENKO, M. B., and SHANTALIN, A. M.

"Process of the Decomposition of Active Chlorine in Solution"

USSR Authors' Certificate No 335211, filed 20 Jun 60, published 15 May 72  
(from Referativnyy Zhurnal -- Khimiya, No 8, (II), 1973, Abstract No 8L254P)

Translation: A process is patented for the dissociation of active chlorine in solutions by means of heating, which is distinguished in that, in order to increase the velocity of dissociation, a process occurs in order to maintain a stable pH value for the solution equal to 5.5 to 6.5. It is proposed to carry out the process by bubbling gases which have been pre-heated and humidified to 60-100% (relative to the temperature of the solution). The value of the pH of the solution during the process stays in the region 5.5 to 6.5 by the addition of alkaline or alkali salts to the solution. The temperature of the solution is confined to the region 60-100°C. The process is carried out either as a batch or as a continuous system, for example, for the flow of the pre-heated solution across a step-wise capacity pattern. The solution is made alkaline at the beginning of the process; that is, the most rapid reduction in the pH of the solution occurs during the first stage of the pro-

1/2

- 4 -

USSR

EBERIL', V. I., et al., USSR Authors' Certificate No 335211, filed 20 Jun 60,  
published 15 May 72

cess when velocity of dissociation of the active chlorine is highest. From  
50-100% of the alkali reagents supplied in the solution are introduced during  
the first 60 minutes of the process.

2/2



1/2 019  
TITLE--FOCAL INJURIES OF THE MYOCARDIUM IN OPERATED PATIENTS -U-  
AUTHOR--(02)-SHKROB, O.S., DREYZINA, A.M.  
COUNTRY OF INFO--USSR  
SOURCE--KHIRURGIYA, 1970, NR 3, PP 41-48  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--MYOCARDIUM, NECROSIS, SURGERY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1983/1175  
CIRC ACCESSION NO--AP0054074  
STEP NO--UR/0531/70/000/001/0041/0048  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--18SEP70

2/2 019

CIRC ACCESSION NO--AP0054074  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE AUTHORS REPORT ON THE DEVELOPMENT OF FOCAL INJURIES OF THE MYOCARDIUM (MYOCARDIAL INFARCTION, FOCAL NECROSIS, FOCAL DYSTROPHY) IN PATIENTS OPERATED UNDER ANESTHESIA. SUCH COMPLICATIONS WERE OBSERVED IN 29 OUT OF 1400 OPERATED PATIENTS, AGED 21 TO 80 YEARS. THE PAPER ANALYZES THE FACTORS CONDUCTIVE TO THE DEVELOPMENT OF THE REFERRED TO COMPLICATIONS, AS WELL AS TO THE FEATURES SPECIFIC TO THE DIAGNOSIS, CLINICAL COURSE AND TREATMENT OF POSTOPERATIVE MYOCARDIAL INFARCTION.

UNCLASSIFIED

1/2 030

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--CORRECTION OF THE WATER AND SALT METABOLISM IN PATIENTS 8FTER  
OPERATIONS ON THE STOMACH -U-  
AUTHOR--(05)-SHKROB, O.S., DREYZINA, A.M., SOLOMATINA, N.F., KUZMINA, L.N.,  
PARSHENKOVA, O.I.  
COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 4, PP 60-65

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--METABOLISM, SURGERY, STOMACH, DIGESTIVE SYSTEM, ELECTROLYTE,  
BLOOD CIRCULATION, BLOOD PLASMA, PROTEIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1983/1236

STEP NO--UR/0531/70/000/004/0060/0065

CIRC ACCESSION NO--AP0054131

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054131

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS REPORT THE RESULTS OF CORRECTION OF WATER IONIC DISTURBANCES IN PATIENTS OPERATED ON THE STOMACH. A TOTAL OF 120 PATIENTS SUBJECTED TO GASTRECTOMY, RESECTION OF THE STOMACH AND PALLIATIVE OPERATIONS WERE EXAMINED. CORRECTION OF HYDROIONIC DISTURBANCES WAS CARRIED OUT FROM THE FIRST DAY AFTER THE OPERATION AND CONSISTED IN OBLIGATORY USE OF POLYIONIC SOLUTIONS WITH DUE CONSIDERATION OF THE LOSS OF ELECTROLYTES. DYNAMIC INVESTIGATIONS OF PLASMA AND URINARY ELECTROLYTES, VOLUME OF CIRCULATING BLOOD, PLASMA, CIRCULATING PROTEIN, HEMOGLOBIN, HEMATOCRIT, VOLUME OF INTRACELLULAR AND TOTAL WATER AGAINST THE BACKGROUND OF THE SOLUTIONS ADMINISTERED DURING PARENTERAL NUTRITION REVEALED NO ESSENTIAL FLUCTUATIONS. THIS TESTIFIED TO THE FACT THAT THE EMPLOYED METHOD OF PARENTERAL NUTRITION IN PATIENTS AFTER OPERATIONS ON THE GASTROINTESTINAL TRACT COMPENSATES THE WATER AND SALT DEFICIENCY. AS THE RESULT OF THE ABOVE MENTIONED TREATMENT DURING THE LAST TWO YEARS NO SYMPTOMS OF DEHYDRATION AND DYSELECTROLYTEMIA WERE OBSERVED.

UNCLASSIFIED

US3R

UDC: 621.396.67:624.97(088.8)

SHKUD, E. A. and KORSUNSKIY, I. M.

"Insulators for Radio Mast Guys"

/Gos. proyekt. in-t/ Avt. sv. SSSR (State Design Institute, Author's Certificate USSR) Class 21c, 13/07. (E 01 b 17/12), No. 271605, Application 20.05.69, Publication 3.09.70 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3B92P)

Translation: The proposed insulator contains flanges connected by braces, basic (operating) and supporting porcelain insulators, and the elements with which they are attached to the cable guy. For the purpose of improving the mechanical reliability, the attaching element is made in the form of a metallic sleeve placed inside the basic (operating) and supporting insulators through which the cable guy passes.

1/1

- 20 -

USSR

UDC: 621.396.67

AYZENBERG, G. Z., BELOUSOV, S. P., SHAMSHIN, V. A., and SHKUD, M. A.

"Transmitting Antennas for Short-Wave Broadcasting"

Moscow, Elektrosvyaz, No 5, 1970, pp 4-13

Abstract: This article is devoted to recommendations concerning the application, correction, and precisioning of new types of antennas recently developed, tested, and distributed. These include synphase antennas with an active-range reflector and log-periodic antennas. The article discusses the basic requirements of such transmitting antennas in short-wave broadcasting, the parameters of the new antennas, and recommendations on the choice of particular types for network broadcasting depending on the distance covered. This last is given in the form of a table, which lists such types as the SGD 4/8 RA for an optimal wave of 12 meters in a range of 10.7 to 20.0 meters, complex arrangements consisting of three SGD 4/8 RA or SGD 4/8 RAD for optimal waves of 12, 26, and 40 meters, and the RGD 70/6. Physical and electrical characteristics, including schematics showing the arrangements of radiators, of these antennas are given.

1/1

- 33 -

USSR

UDC 681.325.3

SHKULIN, P. S., DAVYDOV, V. P. KASIN, A. P.

"A Microprogram Control Device"

Moscow, Otkrytiya, Izobreteniya, Promushlennyye Obrazttsy, Tovarnyye Znaki, No 9, 1970, p 130, Patent No 264783, filed 25 Mar 68

Abstract: This Author's Certificate introduces a microprogram control device which contains a permanent memory, decoder, relay registers, and a circuit for controlling the transfer of a microcommand address. As a distinguishing feature of the patent, the device is simplified by connecting the first outputs of the first operation code register through the first group of rectifiers to the first input of the delay register, the second outputs of the first code operation register are connected through the second group of rectifiers to the second input of the delay register, the first outputs of the second operation code register are connected through the third group of rectifiers to the third input of the delay register, the second outputs of the second code operation register are connected through the fourth group of rectifiers to the fourth input of the delay register, the second inputs of the first and

1/2

USSR

SHKULIN. P. S., et al., Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Tovarnyye Znaki, No 9, 1970, p 130, Patent No 264783, filed 25 Mar 68

second groups of rectifiers are connected through the first "AND" circuit to the first output of the flip-flop, the second output of the flip-flop is connected through the second "AND" circuit to the second inputs of the third and fourth groups of rectifiers, the second inputs of the "AND" circuits are connected to the signal transfer bus, and the first and second inputs of the flip-flop are connected to the corresponding outputs of the memory device.

2/2

- 29 -



USSR

UDC 621.397:(625+629)(088.8)

SHKUNAYEV, E. K.

"Procedure for Imprinting the Image of a Coordinate Grid"

USSR Author's Certificate No 254798, Filed 31 Jul 68, Published 9 Mar 70  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9G234P)

Translation: A procedure is proposed for creating the impression of a coordinate grid on an image of a segment of the Earth's surface formed on a television screen, for example, by means of the television transmitters of artificial Earth satellites. In order to improve the accuracy and to automate the process of creating this impression, the image of the coordinate grid on the television screen with the recorded image of the segment of the Earth's surface is shaped by means of a double channel by superposing model spheres with luminescent lines applied to its surface on the signals of the basic television image. These lines simulate the parallels and meridians of the corresponding segment of the Earth's surface.

1/1

USSR

UDC 621.378.325

BYKOV, V. P., VAKHITOV, N. G., NOVOKRESHCHENOV, V. K., SHKUNOV, N. V.

"Effect of Resonator Matching on the Power of Solid-State Lasers"

Moscow, Kvantovaya Elektronika, No 2, 1971, pp 53-56

Abstract: Conditions are determined for matching of the various sections of the optical cavity of a solid-state laser in which the active element is a nonhomogeneous dielectric, and an experimental study is made of the effect which such matching has on emission power. It is shown that greater power is generated in the matched than in the unmatched mode, other things being equal. The authors thank V. G. Daitriyev for assistance with the work.

1/1

USSR

UDC 621.385.832.002.237

LYUBCHIK, Ya. G., SAVINA, N. V., FITKOVA, T. Ya., ~~SEKUNOV, V. A.~~

"Improving the Sensitivity of Cathode-Ray Oscillographs by Using Electrostatic Quadrupole Lenses"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1941-1945

Abstract: It is experimentally and theoretically shown that a triplet of quadrupole lenses can be used as a system for focusing and after-deflection of the electron beam in an oscilloscope CRT. It is concluded on the basis of the data presented that the proposed method has promise for improving sensitivity. A further increase in the specific sensitivity of cathode-ray oscilloscopes can be achieved by eliminating the spherical aberrations of the quadrupole lenses. The tube design used in the experiment with electrostatic quadrupole lenses is slightly more complicated than that of the analogous tube with axial electrostatic lens, but is much simpler than a tube with a magnetic focusing system.

1/1

5

USSR

UDC 632.95

NEL'NIKOV, N. N., ANDREYEVA, YE. I., PRONCHENKO, T. S., SKALCHURKOVA, A. V.,  
 SEKURATOVA, G. N., KURBANOVA, L. B., YURKOVA, A. G., OBUKHOVA, V. I., and  
 NOVIKOVA, R. G.

"Concerning Liquid Organomercury Seed Disinfectants"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection --  
 collection of works), vyp 1, Moscow, 1970, pp 150-155 (From RZh-Khimiya, No 11,  
 Jun 72, Abstract No 11N427)

Translation: From the results of hothouse and small-plot field tests of  
 non-Soviet and experimental Soviet samples of liquid organomercury fungicides,  
 as well as with consideration to non-Soviet research and practical use in such  
 fungicides, the authors conclude that liquid preparations deserve attention  
 as promising forms for use as seed disinfectants in Soviet agriculture.

1/1

UDC 632.95

USSR

APPROVED FOR RELEASE: 07/20/2001  
 YUKHIN, N. N., ANDREYEVA, YE. I., PRONCHENKO, T. S., SEKURATOVA, G. N., YURKOVA, A. G.,  
 NOVIKOVA, R. G., and OBUKHOVA, V. I.

"Phenylmercury and Hexylmercury"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection --  
 collection of works), vyp 1, Moscow 1970, pp 145-150 (from RZh-Khimiya, No 11,  
 Jun 72, Abstract No 11N426)

Translation: Seed disinfectant dusts -- hexylmercury (1% EtHgCl, 18-22%  
 hexachlorobenzene, and up to 20%  $\gamma$ -hexachlorocyclohexane) and phenylmercury  
 (1% EtHgCl and 18-22% hexachlorobenzene) -- are officially authorized in the  
 Soviet Union for use against the same plant diseases as those controlled by  
 granosan. About half the EtHgCl expended when granosan is used is expended  
 when phenylmercury and hexylmercury are used. Phenylmercury can be used  
 against fusarium wilt and helminthosporiosis. The new disinfectants show  
 promise as agents for controlling dwarf wheat infections and wheat kernel  
 smut. The most promising signal dyes for the disinfected grain are Rhodamine  
 C, methylene blue, acid blue-black and direct red 2C.

1/1

USSR

UDC: 539.183.2

SILANT'YEV, A. N., POLYAKOVA, T. V., RABOTNOVA, F. A., SHKURATOVA, I. G.

"Isotopic Analysis of Samples of Radioactive Fallout and Aerosols Using Beta Spectrometry"

Tr. In-t eksperim. meteorol. Gl. upr. gidrometeorol. sluzhby pri Sov. min. SSSR (Works. Institute of Experimental Meteorology. Main Administration of the Hydrometeorological Service Affiliated With the Council of Ministers of the USSR), 1972, vyp. 25, pp 136-140 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 6, Jun 72, Abstract No 6.32.1275)

Translation: The paper deals with a method of determining the content of isotopes radium-106, praseodymium-104, yttrium-90 and strontium-89 by beta spectrometric analysis. A scintillation beta-spectrometer with plastic scintillator 70 mm in diameter and 20 mm thick was used as the spectrometer. Only beta emission with energy above 630 keV is considered in processing the spectra. Spectra measured in the range from 630 keV to 3.5 MeV are broken down into intervals, and the system of equations

$$N_i = a_i^{90} S_{90} + a_i^{104} S_{104} + a_i^{144} S_{144} + a_i^{106} S_{106}, \quad i=1, 2, 3, 4.$$

1/2

USSR

SILANT'YEV, A. N., Tr. In-t eksperim. meteorol. Gl. upr. gidrometeorol. sluzhby pri Sov. min. SSSR, 1972, vyp. 25, pp 136-140

is solved, where  $N_i$  is the number of pulses registered in interval  $i$ ;  $S$  is the number of pulses registered in the interval above 630 keV;  $a_i$  is a factor for converting from the number of pulses in an interval to the number of pulses registered in the interval above 630 keV; and conversion from the number of pulses registered to the radioactivity of the isotopes can be computed by the formula

$$N = A_0 \epsilon \omega \frac{1 - e^{-\mu d}}{\mu d},$$

where  $N$  is the count rate in the interval above 630 keV;  $A_0$  is the activity of the preparation;  $\epsilon$  is the effectiveness of registration in the interval considered;  $\omega$  is the solid angle which accounts for angular distribution;  $d$  is the thickness of the layer, and  $\mu$  is the coefficient of attenuation of beta emission. Four illustrations, bibliography of two titles. Résumé.

2/2

- 110 -

USSR

UDC: 543.51

~~SHKURDODA, V. F.~~, Candidate of Technical Sciences; SAMOBROD, V. V.,  
ANDRUSENKO, A. A., and DOLYA, V. N., Engineers

"A Manufactured Monopolar Type MKh-7301 Spectrometer"

Moscow, Pribery i sistemy upravleniya, No 6, 1972, pp 42-43

Abstract: The Sumy Plant for Electronic Microscopes has designed a monopolar mass spectrometer, type MKh-7301, for mass production. N. N. Bagrov, A. A. Guslyakov, and A. G. Furmanskiy were the men primarily responsible for the design of the industrial version of this instrument, which was constructed for dealing with problems involving the analysis of residual gases in vacuum systems, gas separation and the determination of leakages in high vacuum, the efficiency of evacuation in systems, the control of residual gases in technical procedures such as vacuum sputtering of thin films, vacuum alloying, and the like. A block diagram and a photograph of the instrument are presented together with a list of its technical characteristics and a sample mass spectrograph of residual gases. The instrument itself is discussed and its theory explained. The device has both automatic and manual scanning, and its resolving power and mass range can be varied within certain limits.

1/1

- 132 -

USSR

UDC 621.52:621.384.8

ZENKIN, V. I., SAVIN, O. R., SEKURDODA, V. F.

"Automatic Calibration of Mass Spectrometer Gas Analyzers"

Pribory i sistemy avtomatiki. Resp. mezhd. nauchno-tekhn. sb. (Devices and Systems of Automation. Republic Interdepartmental Collection), Vyp. 9, pp 125-130 (from RZh--Elektronika i yeye primeneniye, No 5, May 70, Abstract No 5A50)

Translation: A system was developed for automatic calibration of mass spectrometer gas analyzers which assures delivery of the results of analysis in percents by volume of the contents of the components being checked. On the basis of this system the MX-12 (checking) and MX-1212 (regulating) mass spectrometer gas analyzers were constructed, which successfully passed industrial tests and were accepted for series production. G. B.

1/1



1/2 013 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--WELDING CONNECTING PARTS TO THIN WALLED TUBES WITH SPIRAL SEAMS -U-  
AUTHOR--(04)-ZINOVYEV, A.G., SHKURENKO, A.A., PRIMAK, A.A., POPEKO, N.A.  
COUNTRY OF INFO--USSR  
SOURCE--MOSCOW, SVAROCNOYE PROIZVODSTVO, NO. 5, 1970, PP 41-42  
DATE PUBLISHED-----70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--WELDING MACHINE, PIPE WELDING/(U)MSHP200 WELDING MACHINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605041/D09 STEP NO--UR/0135/70/000/005/0041/0042  
CIRC ACCESSION NO--AP0142742  
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0142742

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINCE IT IS IMPOSSIBLE TO CUT  
THREAD INTO THESE FINE WALLED TUBES, THERE IS NEED FOR FILLING OUT THE  
TUBE ENDS WITH THICKER WALLED TUBES OR SPECIAL CONNECTING ELEMENTS.  
ALTHOUGH THE WELDING OF THESE CONNECTING ELEMENTS HAS BEEN DONE ON  
MACHINES OF THE MSHP-200 TYPE, THE WORK IS COMPLICATED BY EXCESSIVE WEAR  
AND TEAR OF THE ELECTRODES AS WELL AS THE NECESSITY FOR CLEANING AND  
DRESSING THE WELDED SURFACES. THIS ARTICLE DESCRIBES A NEW MACHINE FOR  
DOING THIS WELDING, A PHOTOGRAPH OF THE MACHINE BEING SUPPLIED. A SHORT  
LIST OF ITS TECHNICAL SPECIFICATIONS IS ALSO PROVIDED. THE OPERATION OF  
THE MACHINE IS EXPLAINED, AND THE RESULTS OF EXPERIMENTS PERFORMED WITH  
IT IN THE LABORATORY ARE GIVEN. IT IS ASSERTED THAT TUBES SO WELDED CAN  
BE SUCCESSFULLY USED IN QUICKLY COLLAPSIBLE IRRIGATION SYSTEMS OPERATING  
UNDER PRESSURES 6-12 TIMES ATMOSPHERIC. FACILITY: VNITI.

UNCLASSIFIED

USSR

BALOSHIN, O. N., BLAGORODOV, A. M., BOLONKIN, B. V., VIADIMIRSKIY, V. V.,  
GORIN, YU. P., GRIGOR'YEV, V. K., GRISHIN, A. P., YEROFEYEV, I. A., KOROL'KOV,  
I. YA., LUZIN, V. N., MILLER, V. V., NIKOLAYEVSKIY, YE. S., PETRUKHIN, V. N.,  
PLIGIN, YU. S., PONOMAREV, L. A., SIROTKIN, S. M., SOKOLOVSKIY, V. V., TARASOV,  
YE. K., TIKHOMIROV, G. D., TROSTINA, K. A., TURCHANOVICH, L. K., and SHKURENKO,  
YU. P., Institute of Theoretical and Experimental Physics GKI AE (State  
Committee for the Use of Atomic Energy)

"The  $K^-p \rightarrow \bar{K}^0 n$  Charge Exchange Reaction at a Pulse of 39 GeV/sec"

Moscow, Yadernaya Fizika, Vol 18, No 3, Sep 73, pp 542-544

Abstract: The authors present the measurement results from studying the charge exchange reaction of  $K^-$ -mesons on protons ( $K^-p \rightarrow \bar{K}^0 n$ ) at a pulse of 39 GeV/sec. The study was carried out using the ITEP 6-m magnetic track spectrometer. The working volume of the magnetic field of the spectrometer was  $1.0 \times 1.5 \times 6$  m. Twelve optical spark chambers were located inside the magnet, with each chamber having eight spark gaps (10 mm each). The chamber electrodes consisted of two layers of aluminum foil 14 microns thick. The photographs were taken through a special slit in the magnet yoke. A mirror system made it possible to obtain three stereoprojections of all of the chambers

1/2

SSR

18

BALOSHIN, O. N., et al., Yadernaya Fizika, Vol 18, No 3, Sep 73, pp 542-544 with one camera. The reaction was studied on the negative particle beam of the IFVE accelerator. The  $K^-$ -mesons were distinguished by a differential Cerenkov counter. The beam was focused on a liquid hydrogen target 40 cm long which was set approximately three meters from the first chamber of the spectrometer. Approximately  $5 \cdot 10^7 K^-$ -mesons were passed through the equipment and 1020 photographs taken. Pairs of uniformly charged tracks were measured on the photographs. The measurement results were then processed on the Razdan-3 computer. Only 270 intersecting tracks were found. A graph is given for the differential cross section of the reaction. The results show that the cross section value of  $7.4 \pm 1.2$  microbarns obtained by the authors in comparison to data obtained for lower energies elsewhere shows the logarithmic dependence of the charge exchange cross section on the pulse, equal to  $-1.58 \pm 0.05$ . The authors thank K. G. Boreskov, A. M. Lapidus, S. T. Sakhorukov, and K. A. Ter-Martirosyan for their presentation of the computational results as the dependence of the differential cross section on pulse transfer ( $do/dt$ ). This dependence is compared with predictions of the Regge pole model.

1/1

USSR

UDC 547.853.1<sup>2</sup>221:542.944.3:543.422

SHKURKO, O. P., BARAM, S. G., MAMAYEV, V. P., Institute of Organic Chemistry of the Siberian Department of the USSR Academy of Sciences, Novosibirsk

"Pyrimidines. XXI. Synthesis of 4(6)-substituted 2-fluoropyrimidines"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, 1972, pp 1281-1284

Abstract: The synthesis of 2-fluoropyrimidine (I) and its 4(6)-substituted derivatives (II-X) is described, and a study is made of their reactivity and the effect of the nature of the substituents on the nobility of the fluorine atom in nucleophilic substitution. The 4(6)-substituted derivatives are obtained by the action of cesium fluoride on the corresponding 2-chloropyrimidines in aprotic bipolar solvents. Spectral and nuclear magnetic resonance data are presented which confirm the picture of the fluoropyrimidines obtained. The experimental procedures and yields are given for the reaction of chloropyrimidines with cesium fluoride and the separation of 2-fluoropyrimidine, 2,4-difluoropyrimidine, 2-fluoro-4-methylpyrimidine, 2-fluoro-4,6-dimethylpyrimidine and 2-fluoro-4-methoxypyrimidine and the isolation of 2-fluoro-4-phenylpyrimidine, 2-fluoro-4-methyl-6-phenylpyrimidine, 2-fluoro-4,6-diphenylpyrimidine, 2-fluoro-4-dimethylaminopyrimidine and 2,4,6-trifluoropyrimidine.

1/1

USSR

UDC: 615.373:576.851.45.077.37.074

SHKURKO, YE.D., SHERSHNEV, P.A., and KHUNDANOV, L.YE., Irkutsk Scientific  
Research antiplague Institute of Siberia and the Far East

"Electrophoretic Study of the Protein Composition of Tularemia Diagnostic  
Sera"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 2, 1970, pp  
43-47

Abstract: Immunization of horses with tularemia antigen increased serum  
gamma globulin (by 1.24%) and total protein (by 0.3-1.1%). However, the  
amount of alpha- and beta-globulins and albumin changed little in the course  
of immunization, and was virtually the same as in normal serum. No signifi-  
cant changes in the composition of the serum proteins occurred after the  
immunization cycles were increased. The gamma-globulin fraction increased  
only during a cycle, and not with increase in the number of cycles. The  
gradual increase in gamma-globulin in the course of immunization suggests that  
this fraction is associated with specific tularemia serum antibodies. No  
quantitative relationship was detected between the agglutination titer of  
the tularemia sera and their protein composition.

1/1

Acc. Nr: *AP0043866*

Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i  
Immunobiologii, 1970, Nr 2, pp *43-47*

ELECTROPHORETIC STUDY OF THE PROTEIN COMPOSITION  
OF TULAREMIA DIAGNOSTIC SERA

*Ye. D. Shkurko, P. A. Shershnev, L. Ye. Khundanov*

It was demonstrated by the method of electrophoresis on paper that specific antibodies of tularemia sera associated with the gamma-globulin fraction. In immunization of horses with tularemia antigens the content of total protein and of gamma-globulin fraction increased in their serum; the amount of albumin fraction, alpha-and beta-globulins varied but insignificantly.

There was no quantitative relationship between the specific agglutination titre and fractional composition of the protein in the blood of immune animals.

REEL/FRA  
19770290

*6-DI*

USSR

UDC 621.391.2.018.756:62-50.001.57

BESHANOV, A. M., ZOLOTAREV, V. P., KOMAROVSKIY, K. P., SHKUROBAT, I. G.

"Study of the Properties of a Neuristor Line Based on Plane-Epitaxial Thyristors"

Moscow, Radiotekhnika i Elektronika, Vol XVI, No 2, February 1971, pp 399-403

Abstract: This article contains the results of a study of a neuristor pulse in a line based on plane-epitaxial thyristors with a stepsize of 0.7 and 0.1 mm. It is demonstrated that with a thyristor stepsize of 0.7 a quite strong relation is exhibited for a RC-circuit capacitance of 50-60 picofarads; for a neuristor line with a stepsize of 0.1 mm an additional inserted capacitance is no longer needed. When investigating the delay time of the neuristor pulse, a weak relation is noted between the delay time (within the limits of 5%) and the bias; additional devices for stabilizing the scanning speed are no longer needed here. In addition, by varying the bias it is possible to change the propagation rate of the neuristor pulse within broad limits of  $10^6$  to  $2 \cdot 10^3$  cm/sec.

1/2



USSR

BESHANOV, A. M., et al., Radiotekhnika i Elektronika, Vol XVI, No 2, February 1971, pp 399-403

Thus, it is found that it is possible to manufacture a neuristor line with an active element (thyristor) stepsize no greater than 100 microns based on plane-epitaxial technology. The neuristor pulse length is 100-50 nanoseconds. Providing coupling of the neuristor line thyristors through the lower base leads to the fact that the neuristor pulse encompasses less than 1 cascade. This makes it possible to vary the propagation rate as pointed out above. Within certain limits the scanning rate depends weakly on the bias and has a maximum for a load capacitance of about 100 picofarads.

2/2

- 20 -

3

USSR

UDC: 621.3:621.039.667

BOOK

DASHUK, P. N., ZAYENTS, S. L., KOMEL'KOV, V. S. (general editor), KUCHIN-SKIY, G. S., NIKOLAYEVSKAYA, N. N., SHKUROBAT, P. I., SHNEYERSON, G. A.,  
 TEKHNIKA BOL'SHIKH IMPUL'SNYKH TOKOV. I MAGNITNYKH POLEY (Technology of  
 High-Current Pulses and Strong Magnetic Fields), Moscow, "Atomizdat", 1970,  
 472 pp, illus, biblio, 2465 copies printed

The book describes circuits, methods of calculation, characteristics and design of high-power capacitor banks and their principal elements: capacitors, dischargers of various types (vacuum, high-pressure, solid-dielectric), insulation of connectors (busbars, cables), and pulse transformers. Methods are presented for calculation of magnetic fields and inductances in solenoids and conductors. The singularities of operation of the structural elements are considered as well as the behavior of metals in superconducting fields.

Contents	Page
Foreword . . . . .	3
Introduction . . . . .	6
References (14 titles) . . . . .	11

1/6

58

DASHUK, P. N. et al., TEKHNIKA BOL'SHIKH IMPUL'SNYKH TOKOV I MAGNITNYKH  
POLEY, Moscow, "Atomizdat", 1970

Chapter 1. Schematic Circuits of High-Current Pulse Generators . . . . .	12
1.1. Schematic Circuits . . . . .	12
1.2. Circuits With Load-Shorting (Crowbar) . . . . .	23
References (12 titles) . . . . .	27
Chapter 2. High-Voltage Pulse Capacitors . . . . .	28
2.1. Special Requirements for the High-Voltage Pulse Capacitors Used in Current Pulse Generators . . . . .	28
2.2. Characteristics of Basic Insulating Materials at Frequencies of $10^4$ - $10^7$ Hz . . . . .	29
2.3. Operating Conditions of Capacitor Insulation Subjected to Re- peated Oscillatory Discharges . . . . .	34
2.4. Inductance of Capacitors . . . . .	47
2.5. Energy Losses in Pulse Capacitors . . . . .	65
2.6. Experimental Determination of Capacitor Characteristics . . . . .	73
2.7. Types of Pulse Capacitors and Their Structural Elements . . . . .	76
References (47 titles) . . . . .	104
Chapter 3. Vacuum Dischargers . . . . .	107
3.1. General Requirements . . . . .	107
3.2. General Characteristics of Vacuum Dischargers . . . . .	109
3.3. Insulation of Vacuum Dischargers . . . . .	111

59

28.

DASHUK, P. N. et al., *TEKNIKA BOL'SHIKH IMPUL'SNYKH TOKOV I MAGNITNYKH POLEY*, Moscow, "Atonizdat", 1970

3.4. Delay in Breakdown of Vacuum Dischargers . . . . .	120
3.5. Distribution of Current in a Vacuum Discharger . . . . .	146
3.6. Durability of a Vacuum Discharger . . . . .	153
3.7. Construction of Vacuum Dischargers . . . . .	156
References (41 titles) . . . . .	173
Chapter 4. Dischargers at Atmospheric Pressure . . . . .	175
4.1. Basic Assumptions . . . . .	175
4.2. Principles of Controlling Spark Dischargers . . . . .	178
4.3. Trigatrons . . . . .	194
4.4. Cascade Dischargers . . . . .	216
4.5. Electrode Erosion Accompanying Commutation of High-Current Pulses . . . . .	222
References (94 titles) . . . . .	228
Chapter 5. High-Pressure Dischargers . . . . .	
5.1. Typical Peculiarities of the Dischargers and Field of Application . . . . .	232
5.2. Discharge Voltages . . . . .	233
5.3. Methods of Initiation, and Delay in Firing of Dischargers . . . . .	236

DASHUK, P. N. et al., TEKHNIKA BOL'SHIKH IMPUL'SNYKH TOKOV I MAGNITNYKH  
POLEY, Moscow, "Atomizdat", 1970

5.4. Characteristics of a Spark Channel and Energy Release . . .	241
5.5. Structural Elements and Some Peculiarities of Operational Use of Compressed-Gas Dischargers . . . . .	247
References (37 titles) . . . . .	254
Chapter 6. Solid-Dielectric Dischargers . . . . .	256
References (8 titles) . . . . .	267
Chapter 7. Insulation of Current Pulse Generators. Low-Inductance Cables . . . . .	268
7.1. Design Modifications of Connecting Elements in Current Pulse Generators, and Requirements for Insulating them . . . . .	268
7.2. Some General Characteristics of Insulation of Connecting Ele- ments of All Types . . . . .	269
7.3. Discharge Voltages Over the Surface of Insulation . . . . .	278
7.4. Construction of Individual Sections of the Insulation of Con- necting Elements, and Their Discharge Characteristics . . . . .	281
7.5. Low-Inductance Cables . . . . .	286
7.6. Dressing Cable Terminals . . . . .	296
References (50 titles) . . . . .	301

4/6

JR

DASHUK, P. N. et al., TEKHNIKA BOL'SHIKH IMPUL'SNYKH TOKOV I MAGNITNYKH  
POLEY, Moscow, "Atomizdat", 1970

Chapter 8. Calculations of Current Pulse Generators . . . . .	304
8.1. Computational Scheme . . . . .	304
8.2. Fundamentals of an Approximate Method of Calculating the In- ductance of Flat Busbars . . . . .	307
8.3. Calculating the Inductance of Busbars When Current is Supplied Along the Periphery . . . . .	319
8.4. Calculating the Inductance of Current Pulse Generators With Cable Connection Between the Capacitors and the Central Buses . . . . .	328
8.5. More Precise Calculation of the Discharge Mode of a Current Pulse Generator With Flat Busbars . . . . .	330
8.6. Calculation of the Resistance of Flat Busbars and the Electro- dynamic Forces Acting on the Busbars . . . . .	333
8.7. Conditions of Parallel Operation of Dischargers . . . . .	336
References (21 titles) . . . . .	348
Chapter 9. Types of Pulse Current Generators . . . . .	349
9.1. High-Energy Current Pulse Generators . . . . .	349
9.2. Low-Energy Current Pulse Generators . . . . .	377

5/6

ASHUK, P. N. et al., TEKHNIKA BOL'SHIKH IMPUL'SNYKH TOKOV I MAGNITNYKH  
POLEY, Moscow, "Atomizdat", 1970

9.3. Auxiliary Devices Used in Current Pulse Generators . . . . .	381
References (29 titles) . . . . .	394
Chapter 10. Producing Strong Magnetic Pulse Fields . . . . .	396
10.1. Field of Application of a Strong Magnetic Pulse Field. Basic Types of Solenoids and Their Peculiarities. . . . .	396
10.2. Requirements for the Energy Source . . . . .	404
10.3. Calculations of the Magnetic Fields of Solenoids . . . . .	409
10.4. Mechanical Strength and Construction of Solenoids for Producing Strong Magnetic Pulse Fields . . . . .	432
10.5. Heat Characteristics of Coils for Obtaining Strong Pulse Mag- netic Fields . . . . .	445
10.6. Singularities in the Operation of Single-Turn Solenoids in Superstrong Magnetic Fields . . . . .	448
References (112 titles) . . . . .	466

6/6

CSO: 1860-W

- END -

- 169 -

USSR

UDC 535.853.4:535.42

LUR'YE, A. I., SHKURSKIY, B. I.

"Distortions of the Apparatus Functions of Diffraction Gratings, Brought About by Random Errors of Preparation"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 12, December 1971, pp 5-7

Abstract: Expressions are obtained for determining the apparatus functions of defraction gratings, with account taken of random shifts of lines or of their boundaries. For errors both in the position of the lines and in the position of the boundaries of the lines, with the same distribution laws, the distortions of the apparatus-function envelope are practically the same. Thus, the obtained expressions permit calculation of the distortions of the apparatus functions of defraction gratings that are prepared with random errors which correspond to a known distribution law. 1 table, 2 references.

1/1

- 86 -



USSR

UDC 576.858:616-002.77

BOCHAROV, Ye. F., YAVOROVSKAYA, V. Ye., SHKURUPIY, V. A., BLINOVA, L. I.,  
and KAZNACHEYEV, V. P., Novosibirsk Medical Institute, and Central Order of  
Lenin Institute of Advanced Training of Physicians, Moscow

"Morphogenesis of Cocksackie A 13 Virus Isolated From Rheumatic Fever Patients"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya  
Biologicheskikh Nauk, No 10 (190), 1971, pp 131-137

Abstract: Light and electron microscope examination of human embryonic fibro-  
blasts infected with Cocksackie A 13 virus, strain 689, isolated from rheumatic  
fever patients, showed that the nature and dynamics of the observed changes  
were identical to those in fibroblasts infected with the prototype virus.  
Signs of degeneration were evident within 6 to 8 hours when the virus began  
to reproduce and emerge from the cells. Two hours later eosinophilic and  
basophilic inclusions appeared in most of the affected cells. As the infec-  
tion developed, the nucleus shifted to one of the poles. Structural changes  
in the cell organelles, especially the mitochondria, were prominent. Complex  
membranous-vesicular structures consisting of cytoplasmic vacuoles formed  
around the cells. Discrete granules were scattered about the cytoplasm.  
Virus particles concentrated on the periphery of the cells. These findings  
1/2

USSR

BOCHAROV, Ye. F., et al., Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, No 10 (190), 1971, pp 131-137

are in agreement with the results of morphological studies on other picorna viruses and support the view that virus isolated from rheumatic fever patients belongs to the enterovirus group.

2/2

- 22 -

USSR

UDC: 8.74

SHKUT, N. V. (editor)

"Software for the 'Minsk-2 (22)' Computer in the T Mode. No 8. The TAM-22T Translator. Collection of Materials on Utilization"

Matematicheskoye obespecheniye EVM "Minsk-2 (22)" v rezhime T. Vyp. 8. Translyator TAM-22T. Sbornik materialov po ekspluatatsii. In-t mat. AN BSSR, Minsk. fil. NITsEVT (cf. English above. Institute of Mathematics, Academy of Sciences of the BSSR, Minsk Affiliate of the NITsEVT), Minsk, 1971, 116 pp, 40 k., Knizh. letopis', 1971, No 24, 22 (from RZh-Kiber-netika, No 4, Apr 72, Abstract No 4v548 K)

[no abstract]

1/1

USSR

UDC: 681.3.06:51

SHKUT, N. V.

"ALGAMS in the Programming System of the Minsk-32 Computer"

ALGAMS v sisteme programmirovaniya vychislitel'noy mashiny "Minsk-32"  
(cf. English above), Institute of Mathematics, Academy of Sciences of the  
Belorussian SSR, Minsk, 1971, 172 pp, 40 k. (from RZh-Kibernetika, No  
12, Dec 71, Abstract No 12V946 K)

Translation: The book describes a unit for translation from the ALGAMS  
algorithmic language for the "Minsk-32" computer (the TAM-32 translating  
device). It is noted that the TAM-32 accounts for the individual pecu-  
liarities of programs to be translated, and thus provides programs of  
fairly high quality. A solution is given for the problems which arise  
when the ALGAMS language is incorporated in the programming system of the  
"Minsk-32" computer: ensuring segmentation of programs; ensuring tran-  
sitions in programs; ensuring the use in the programs of procedures and  
parts of global quantities. Descriptions are also given of several de-  
cisions which are aimed at improving the quality of the translated pro-  
grams: economy of computations necessary in addressing variables with

1/2

USSR

SHKUT, N. V., ALGAMS v sisteme programmirovaniya vychislitel'noy mashiny  
"Minsk-32", Minsk, 1971

indices; programming of procedures; combining the fields of local quantities of various procedures. The structure of the information which is the result of the operation of each channel is presented together with translation schemes. V. Mikheyev.

2/2

- 65 -

USSR

UDC: 8.74

SHKUTA, Yu. K., ILCHIN, A. S., Editorial Staff of "Izv. AN KirgSSR"

"Search Program of Optimum Approximations for the General Case of the Method of Least Squares"

Programma poiska nailuchshykh priblizheniy dlya obshchego sluchaya metoda naimen'shikh kvadratov (cf. English above), Frunze, 1971, 15 pp, No 3673-71 Dep. (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V561 DEP)

Translation: Conventionally, the polynomial which approximates an initial function  $f(x)$  is sought in some  $\epsilon$ -strip. Hence it becomes important not only to assign the function  $f(x)$  itself, but the width of the  $\epsilon$ -strip as well. If it is possible in this connection to consider the approximation of the initial function in a tube of diameter  $2\epsilon$ , then a situation arises where a function of one variable may be approximated by a function of two variables. This makes it possible to impose a considerably greater number of conditions on the curve for the same degree of the approximating polynomial. It is natural in this connection to expect improved approximations in just this region. The paper presents the APNICE program for search of optimum approximations developed for these purposes for the BESM-3M computer. Instructions are given for practical utilization of the program. Authors' abstract.

1/1

- 44 -

USSR

UDC: 8.74

SHKUTA, Yu. K., INCHIN, A. S., Editorial Staff of the "Izv. AN KirgSSR"

"A Program for Quadratic Approximation of a Function Assuming That it Passes Through Predetermined Nodes"

Programma kvadraticheskogo priblizheniya funktsii pri uslovii prokhozheniya yeye cherez zadannyye uzly (cf. English above), Frunze, 1971, pp 13, ill. No 3669-71 Dep. (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V562 DEP)

Translation: The paper describes realization of a method of quadratic approximation of a function assuming that it passes through predetermined nodes. The use of this method in practice means that the process of approximation can be made correctable, and that the approximation itself can be made better on given sections. The results of computations which show the possibilities of the method are presented together with a program and instructions for using it. Authors' abstract.

1/1

Numerical Analysis

USSR

UDC 518.517.949.12

SHKUTA, YU. K.

"A Method of Deriving and Using the Language Polynomial"

Frunze, Materialy 1-y Konferentsii Molodykh Uchenykh AN KirgSSR, 1965 -- Sbornik (Materials of the First Conference of Junior Scientists of the Academy of Sciences, Kirgiz SSR -- Collection of Works), "Ilim", 1970, pp 166-167 (from Referativnyy Zhurnal -- Matematika, No 7, Jul 71, Abstract No 7B994, by I Shelikhova)

Translation: The problem of finding the polynomial of smallest degree approximating a given parameter in the region of allowable error is discussed. A method of reducing the degree and deriving an interpolational Lagrange polynomial is described.

1/1



USSR

UDC: 539.374

KURSHIN, L. M. and SHKUTIN, L. I., Hydrodynamics Institute, Novosibirsk

"Stating the Problem of Local Stability of Shells of Rotation"

Moscow, Doklady Akademii nauk SSSR, vol 206, No 4, 1972, pp 838-840

Abstract: With regard to the general theory of the stability of fine shells, the authors pose the question: to what extent is the linear theory useful in describing the pre-critical stress state with a local nature? The answer to this question can only be given from the viewpoint of nonlinear theory, and the authors begin by considering a semi-infinite circular cylindrical shell with a transverse compressive force applied to its free end. The boundary problem of the shell's symmetrical deformation reduces to a system of two equations, from which it is found that the deformed shell is a shell of revolution. The formulas for the stress functions and the sag are brought into these equations, and the problems of determining the critical value of the load parameter and the corresponding problem of the wave-forming parameter are solved.

1/1

- 135 -

USSR

UDC: 539.3

KURSHIN, L. M. and SHKUTIN, L. I.

"The Problem of the Elastic Stability of a Locally Loaded Cylindrical Shell"

Moscow, Prikladnaya matematika i mekhanika, vol 36, No 6, 1972, pp 1123-1129

Abstract: This paper studies the effect of the nonlinearity of an axially symmetrical deformation in a semi-infinite circular cylindrical shell at the end of which is a transverse uniform stress, on its resistance to infinitely small asymmetrical perturbations satisfying swivel support conditions at its end. One of the characteristic problems in the local stability of cylindrical shells is considered; nonlinear equations describing the deformation of the shell with arbitrary rotational angles are used to determine the shell's precritical state. The critical value of the end stress is defined as the least eigen-value of the loading parameter; the problem of determining this value is solved by finding an expression for the critical load. The authors note that the solution to the linear precritical state is useful only for very fine shells.

1/1

USSR

UDC 539.3

SHKUTIN, L. I., Institute of Hydrodynamics, Siberian Department, Academy  
Sciences USSR

"A Method of Solving Certain Boundary Problems in the Theory of The Stability  
of Cylindrical Shells"

Doklady Akademii Nauk SSSR, Vol 190, No 4, 1 Feb 70, pp 800-802

Abstract: Whereas, in the majority of cases regarding the stability of the axisymmetrical condition of equilibrium of a circular cylindrical shell, the problem is reduced to a homogeneous boundary problem for a system of ordinary differential equations, where the solution for the 4-th order equations describes subcritical axisymmetrical bending of the cylindrical shell, the author considers, for the semi-infinite shell, a solution involving complexly conjugate constants, determined from the nonhomogeneous boundary conditions which are characteristic for the subcritical equilibrium of the shell. The procedure is described for both shells of finite length (very short shells) and for semi-infinite shells.

1/1

1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--ENCEPHALYTOGENIC CAPACITY OF THE ACTIVE FRACTION OF BORDETELLA  
PERTUSSIS -U-  
AUTHOR--SHKUYEVA, T.B.  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 6,  
PP 101-104  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RESPIRATORY SYSTEM DISEASE, WHOOPING COUGH, ENCEPHALOMYELITIS,  
MYCOBACTERIUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/0418 STEP NO--UR/0016/70/000/006/0101/0104  
CIRC ACCESSION NO--AP0126171  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0126171

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A STUDY WAS MADE OF ENCEPHALYTOGENIC CAPACITY OF THE ACTIVE FRACTION OBTAINED FROM BORDETELLA PERTUSSIS BY MECHANICAL DISINTEGRATION WITH SUBSEQUENT DIFFERENTIAL CENTRIFUGATION; IT WAS COMPARED WITH ENCEPHALYTOGENIC ACTIVITY OF PERTUSSIS VACCINE AND OF KILLED MYCOBACTERIAE. A MODEL OF EXPERIMENTAL ALLERGIC ENCEPHALOMYELITIS WAS USED IN THIS WORK. ENCEPHALYTOGENIC ACTIVITY OF THE MENTIONED SUBSTANCES WAS ASSESSED BY THE COMPLEX 10 MARK SYSTEM OF ALVORD (1959). IT APPEARED THAT A 50PERCENT EFFECTIVE DOSE OF KILLED MYCOBACTERIA EQUALLED 0.01 MG, AND OF PERTUSSIS VACCINE AND OF THE ACTIVE FRACTION OBTAINED FROM BORDETELLA PERTUSSIS-0.02 MG. HOWEVER, WHEN CALCULATED PER WHOLE MICROBIAL CELL, ENCEPHALITOGIC CAPACITY OF THE ACTIVE FRACTION PROVED TO BE 2.5 LESS THAN THE ACTIVITY OF CORPUSCULAR PERTUSSIS VACCINE AND 5 TIMES LESS THAN ENCEPHALYTOGENIC ACTIVITY OF MYCOBACTERIAE. FACILITY:  
MOSKOVSKIY INSTITUT VAKTSIN I SYVOROTOK IM. MECHNIKOVA.

UNCLASSIFIED

USSR

UDC: 681.3.06:51

RYABININ, A. D., SHKVAR, A. M., SHEVCHENKO, A. I.

"Some Singularities of Difference Processing of Information in Neural Networks"

V sb. Biol., med. kibernet. i bionika (Biology, Medical Cybernetics and Bionics--collection of works), vyp. 2, Kiev, 1970, pp 4-12 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V718)

Translation: The authors consider problems in evaluating the convergence of adaptation processes which arise in systems of scientific-information servicing. The control of adaptation processes is conditionally divided into two subsystems: the subsystem of control of data accumulation processes, and the subsystem of adaptation to ambient conditions. The nature of the functioning of each subsystem is analyzed in detail and convergence of the learning process is evaluated for the resolving algorithm proposed in the paper by Ye. A. Yeltarenko, A. G. Romanenko, V. P. Rumyantsev and A. N. Sumarokov (RZhMat, 1969, 12V538). V. Mikheyev.

1/1

1/2 C18 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--SYNTHESIS AND STUDY OF LONGITUDINAL WAVE ABSORBERS IN RODS AND  
PLATES -U-  
AUTHOR--(03)-KASHINA, V.I., TIUTEKIN, V.V., SHKVARNIKOV, A.P.  
COUNTRY OF INFO--USSR  
SOURCE--AKUSTICHESKII ZHURNAL, VOL. 16, APR.-JUNE 1970, P. 257-263  
DATE PUBLISHED-----70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--MATHEMATIC EXPRESSION, ABSORPTION, METAL ROD, FLAT PLATE,  
VIBRATION TRANSMISSION, LONGITUDINAL WAVE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PRUXY FICHE NO----FD70/605002/D07 STEP NO--UR/0046/70/016/000/0257/0263  
CIRC ACCESSION NO--AP0139457  
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0139457

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE SYNTHESIS OF LONGITUDINAL WAVE ABSORBERS FOR ATTENUATING RESONANCE VIBRATIONS IN RODS AND PLATES. A TEN ELEMENT OPTIMAL ABSORBER FOR A TWO OCTAVE FREQUENCY RANGE IS CALCULATED AS AN EXAMPLE. AN EXPERIMENTAL STUDY IS MADE OF A LONGITUDINAL WAVE ABSORBER WITH AN ABSORPTION COEFFICIENT OF 0.96 TO 0.97 IN A DURALUMIN ROD WITH A THICKNESS OF 5 MM AT FREQUENCIES RANGING FROM 8 TO 32 KHZ.

FACILITY: AKADEMIIA NAUK SSSR, AKUSTICHESKII

INSTITUT, MOSCOW, USSR.

UNCLASSIFIED



Agriculture

USSR

UDC 575.23:582.951.4:517

KUDIN, A. N., SEKVARNIKOV, P. K. and MAR'YUSEKIN, V. F., Department of Experimental Mutagenesis, Institute of Molecular Biology and Genetics, Ukrainian SSR Academy of Sciences, Kiev

"The Induced Variability of Quantitative Characteristics in Wheat"

Kiev, Tsitologiya i Genetika, Vol 7, No 6, Nov/Dec 73, pp 518-522

Abstract: The progeny of an erectoid mutant of bread spring wheat obtained by gamma irradiation of the Novosibirsk-7 type were studied. For 48 of the best lines obtained data are presented on length of the vegetative period, productivity, quantity and quality of gluten and protein and the weight of 1000 grains. These data are said to show an increased heterogeneity of the population compared to starting material, indicating that the macromutation was accompanied by mutations of the various factors of the polygenous system controlling these quantitative characteristics. Several of the lines were superior to the starting material or the parent generation in one or more of the characteristics, indicating the usefulness of this approach in hybridization.

1/1

USSR

UDC 575+581.154

KULIK, M. L., and SHKVARNIKOV, P. K., Sector of Molecular Biology and Genetics of the Institute of Microbiology and Virology, Academy of Sciences Ukrainian SSR, Kiev

"Nature of Modification of Mutagenic Effects Exerted by Fast Neutrons"

Kiev, Tsitologiya i Genetika, Vol 5, No 4, Jul/Aug 71, pp 336-341

Abstract: The mutagenic activity of extracts from dry seeds of peas and wheat that had been irradiated with fast neutrons was determined. The extracts from wheat seeds irradiated with doses of 500-1500 rad, upon acting on non-irradiated wheat seeds that germinated together with the irradiated seeds on the same piece of moist filter paper, increased the frequency of chromosome aberrations in sprouts by a factor of approximately 2.5 compared with that for non-irradiated controls that were not exposed to the action of extracts. The chromosome aberrations were much smaller in number and of a different type than those induced by direct irradiation of the seeds. Similar results were obtained on treatment of germinating pea seeds with extracts from irradiated peas. Extracts from the seed coat and cotyledons of irradiated peas increased the frequency of chromosome aberrations to almost the same extent vs. that of controls, but the types of aberrations were different. This was due to the difference in the chemical constitution of substances contained in the coat and the endosperm. 1.1

- 21 -

USSR

SHLANTSYASKAS, A. A., DRIZHYS, M.-R. M., ZHUKAUSKAS, A. A.

"Pulsations of Temperature in the Area of a Wall with Turbulent Flow Around a Plate by Viscous Fluids"

Tr. AN Lit SSR [Works of Academy of Sciences] Lithuanian SSR, 1971, B., No 2, (65), pp 143-152 by R. Sh Baynberg). (Translated from Referativnyy Zhurnal Mekhanika, No 1, 1, 1972, Abstract No 1B827 by P. Sh. Baynberg).

Translation: Microthermocouples are used to study the pulsations of temperature in a turbulent boundary layer over a flat plate, around which water and transformer oil flow, with constant heat flux at the wall. The mean statistical characteristics of temperature pulsations are used to produce information on the behavior of the pulsation temperature field as a function of  $P$  and the distance to the wall. It is established that where  $P > 1$  and  $Re \approx 2 \cdot 10^6$ , the viscous sublayer relates to the area of unstable flow with prevailing influence of viscous flow. Near the wall, a plane is detected with normal distribution of pulsation amplitude, relative to which perturbations are directed differently: in the viscous sublayer -- toward the wall, beyond this plane -- away from the wall.

1/1

1/2 013  
TITLE--IN THE INTEREST OF COMBAT TRAINING -U- UNCLASSIFIED  
PROCESSING DATE--30OCT70  
AUTHOR--SHLAYEN, M.  
COUNTRY OF INFO--USSR  
SOURCE--KRASNAYA ZVEZDA, JULY 10, 1970, P 4, COLS 2-6  
DATE PUBLISHED--10JUL70  
SUBJECT AREAS--MILITARY SCIENCES, BEHAVIORAL AND SOCIAL SCIENCES  
TOPIC TAGS--MILITARY SCHOOL, TANK CREW TRAINING, PILOT TRAINING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1999/0909  
STEP NO--UR/9003/70/000/000/0004/0004  
CIRC ACCESSION NO--AN0122953  
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AN0122953

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR DESCRIBES HIS VISIT TO THE MILITARY SCHOOL FAKUL, TET OF THE STATE INSTITUTE OF PHYSICAL CULTURE IMENI LESGAF. THERE HE WAS SHOWN A TANK DRIVING SIMULATOR AT THE LABORATORY OF TANK TRAINING AND A LABORATORY WHICH IS INVOLVED IN PILOTS PHYSICAL TRAINING STUDIES. THE SCHOOL'S MISSION IS TO EXPLORE SOME OF THE PROBLEMS RELATED TO COMBAT TRAINING OF TROOPS. A TRAINING DEVICE WHICH DETERMINES THE COORDINATION ABILITY OF PILOTS AND A TREADMILL DEVICE ARE SHOWN.

UNCLASSIFIED

SHLAYFER, S.B.

Math



DEPARTMENT OF THE ARMY  
U.S. ARMY FORENSIC SCIENCE AND TECHNOLOGY CENTER  
333 SCOTT STREET NE  
CHARLOTTE, NC 28201

In Reply, Refer to:  
FSC/HF-23-424-71  
DATA-NM, 7702301

Date: 24 August 1972

TRANSLATION

ENGLISH TITLE: SOLVING A STEFAN TYPE PROBLEM BY THE METHOD OF STRAIGHT LINES

FOREIGN TITLE: Resheniye zadachi tipa stefana metodom pryamlykh

AUTHOR: R. D. Bichell, V. G. Kholodil, D. B. Ginzler

SOURCE: Journal of Computing Mathematics and Mathematical Physics, Vol 9, No. 3, May, June 1969

TRANSLATOR: ACSI  
REQUESTOR: SMTA-V100-F10

GRAPHICS NOT REPRODUCIBLE

This translation was accomplished from a xerox manuscript. The graphics were not reproducible. An attempt to obtain the original graphics yielded negative results. Thus, this document was published as is, in order to make it available on a timely basis.

Approved for public release; Distribution unlimited

USSR

UDC: 621.397

KRIVOSHEYEV, M. I., PLAKSYUK, S. G., SHLAYN, A. I.

"A Device for Measuring Distortions of Television Test Signals"

USSR Author's Certificate No 263039, filed 2 Dec 68, published 1 Jun 70  
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6G109 P)

Translation: A device is proposed for measuring distortions of TV test signals (see RZh-Radiotekhnika, 1969, 10G1). To improve precision and provide for automatic measurement of both the total background noise and its additive and modulation components, a subtraction voltage module and four-input commutator are connected to the control module, and a signal divider is connected between the circuit for restoring the DC component and the control module.

1/1

Molecular Physics

USSR

ANTIPIN, A. A., KURKIN, I. N., SHLENKIN, V. I., Kazan' State University  
imeni V. I. Ul'yancv-Lenin

"Spin-Lattice Relaxation of  $\text{Sm}^{3+}$  and  $\text{Ho}^{3+}$  Ions in Single Crystals of  
Scheelite Structure"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 9, Sept, 71, pp 2641-2645

Abstract: The authors study of the variation with temperature of the spin-lattice relaxation time for  $\text{Sm}^{3+}$  ions in  $\text{CaWO}_4$  single crystals and for  $\text{Ho}^{3+}$  ions in single crystals of  $\text{CaWO}_4$  and  $\text{PbMoO}_4$ . Measurement of relaxation times in the  $\text{CaWO}_4:\text{Sm}^{3+}$  system were made on a frequency of  $\sim 8.8$  GHz by the method of saturation of the spin echo signal, on a frequency of  $\sim 2.9$  GHz by the method of pulse saturation, and from broadening of the EPR signal. The relaxation times for  $\text{Ho}^{3+}$  in calcium tungstate and lead molybdate were found from the variation with temperature of the width of the EPR lines on a frequency of approximately 36.0 GHz.

It was found that direct, Raman, and Obrakhovskiy processes make an appreciable contribution to the probability of spin-lattice relaxation for  $\text{CaWO}_4:\text{Sm}^{3+}$  at temperatures of 1.5-10°K. It was found from the probability of the Obrakhovskiy process that the first excited Stark level of the term  ${}^6H_{5/2}$  is located above the ground state by a distance of  $61.5 \text{ cm}^{-1}$ ,  
1/2



USSR

ANTIPIN, A. A. et al., Fizika Tverdogo Tela, Vol 11, No 9, pp 2641-2645

which agrees satisfactorily with the calculation of the Stark structure for this term. Theoretical valuations are also given for the relaxation times for the calcium tungstate-samarium ion system using the Jeffries method.

Spin-lattice interaction of  $\text{Ho}^{3+}$  ions in calcium tungstate and lead molybdate crystals in the 10-20°K temperature range is determined by the Obrakhovskiy relaxation mechanism.

The authors thank A. M. Morozov for furnishing the single crystals for the research, R. Yu. Abdulsabirov for assistance in carrying out the experiment, and E. Kh. Ivoylova and O. I. Mar'yakhina for assistance in making the calculations. Two figures, bibliography of twenty-two titles.

2/2

- 71 -

SHLENSKAYA, T.N.

Acc. Nr:

AP0049776

Abstracting Service:  
CHEMICAL ABST. 5-70

Ref. Code:

UR0191

99258q Use of alcohols from wide fractions for preparing unsymmetrical adipates and maleates. Ignatova, G. N.; Puchkova, V. V.; Moskovkina, E. M.; Grishko, N. I.; Balashova, T. S.; Shlenskaya, T. N. (USSR). *Plast. Massy* 1970, (1), 17-20 (Russ). Unsym. maleates and adipates, e.g., Bu nonyl maleate, Bu undecyl maleate, maleates from C<sub>12</sub>-n, C<sub>14</sub>-n, C<sub>16</sub>-n alcs., Bu nonyl adipate, and adipates from C<sub>12</sub>-n, C<sub>14</sub>-n, C<sub>16</sub>-n alcs. were prepd. by a 2-stage procedure. Thus, maleic anhydride and the higher alc. were refluxed (in 1:1.02 molar ratio) at 70-90° without a catalyst; then the lower alc. was added (in a 20% excess) and the mixt. was further refluxed with H<sub>2</sub>SO<sub>4</sub> at 140-50°. For unsym. adipates the starting material was adipic acid. The content of the monoester in the reaction mixt. was detd. by ir spectroscopy. The unsym. adipates and maleates were used for the modification of poly(vinyl chloride) (I). Modified I exhibited excellent freeze resistance (to -55°) and good physicochem. properties. CKIR -

REEL/FRAME  
19801694

Acc. Nr:

AP0034215

Abstracting Service:  
CHEMICAL ABST. 4-70

Ref. Code:

UR 0078

71259p Complexing palladium(II) with  $\alpha$ -benzil dioxime in halide and thiocyanate media. Tikhvinskaya, T. I.; Biryukov, A. A.; Shlenskaya, V. L.; Gordvinskaya, N. K. (Kafedra Anal. Khim., Mosk. Gos. Univ. im. Lomonosova, Moscow, USSR). Zh. Neorg. Khim., 1970, 15(1), 128-33 (Russ). By using competitive ligands, like  $\text{Cl}^-$ ,  $\text{Br}^-$ , or  $\text{SCN}^-$  ions, stability constant ( $\alpha_2$ ) of Pd(II)- $\alpha$ -benzil dioxime (HL) complex,  $\text{PdL}_2$ , was detd. and is given as  $\log \alpha_2 = 34.6 \pm 0.5$ . At 20° and ionic strength = 1.0, distribution const. ( $\lambda$ ) of  $\text{PdL}_2$  in  $\text{H}_2\text{O}-\text{C}_6\text{H}_6$  system, presented as  $\log \lambda$ , is  $2.3 \pm 0.2$ . Equil. consts. (as  $\log K$ ) of  $\text{Pd}^{2+} + 2\text{HL} \rightleftharpoons \text{PdL}_2(\text{aq.}) + 2\text{H}^+$  and  $\text{PdL}_2(\text{aq.}) + \text{OH}^- \rightleftharpoons \text{PdL}_2\text{OH}^-$  are  $13.9 \pm 0.2$  and  $4.8 \pm 0.2$ , resp. HMJR

REEL/FRAME

19710868

UDC 621.382.2:535.376

USSR

BRONSHTEYN, I. K., DOLGINOV, L. M., ZHITKOV, Yu. A., LIEOV, L. D., SHARIN, A. I., SHLENSKIY, A. A.

"Some Characteristics of Electroluminescent Diodes Based on Hetero PN Junctions in  $\text{Al}_x\text{Ga}_{1-x}\text{As}$ "

Moscow, Radiotekhnika i Elektronika, vol 16, No 12, Dec 71, pp 2330-2332

**Abstract:** The authors investigate electroluminescent diodes based on the epitaxial heterostructure  $\text{P-GaAs}-\text{P-Al}_x\text{Ga}_{1-x}\text{As}-\text{N-Al}_y\text{Ga}_{1-y}\text{As}$  ( $x \approx 0.05$ ,  $y \approx 0.1$ ). The radiation from the  $\text{P-Al}_x\text{Ga}_{1-x}\text{As}$  layer propagates in a direction perpendicular to the PN junction through the transparent N-region. The emitting layer is doped with germanium to a hole concentration of about  $5 \cdot 10^{18}/\text{cc}$ , and the N-layer is tellurium-doped to an electron concentration of about  $10^{18}/\text{cc}$ . The area of the PN junction is about  $0.01 \text{ cm}^2$ . The electrical parameters of the diodes at room temperature: specific zero-bias capacitance of the PN junction about  $10^5 \text{ pF/cm}^2$ , current cutoff voltage 1.3-1.4 V depending on the mole fraction of aluminum arsenide in the solid solution, breakdown voltage 7 V, residual resistance 0.5 ohm or less.

1/2

SR

BRONSHTEYN, I. K. et al., Radiotekhnika i Elektronika, vol 16, No 12,  
Dec 71, pp 2330-2332

An investigation of the principal electroluminescence characteristics of the diodes shows that they satisfy all the requirements for use as emitters in high-speed electron-optical devices. One figure, one table, bibliography of eight titles.

USSR

UDC 678.06-419.';677.5217.01:53

VISHNEVSKIY, G. YE., ZHUKOVA, R. I., SHLENSKIY, O. E., and SHKLYAROV, A. YU.

"Effect Which the Porosity, Concentration and Properties of Components Have on the Thermal Conductivity of Fiberglass Plastics"

Moscow, Plasticheskiye Massy, No 11, Nov 70, pp 34-38

Abstract: The article presents the results of formal analysis and the use of Maxwell's electrothermal analogy for the thermal conductivity of dispersed media in studying the effect of porosity, cracks, gas inclusions and the mutual arrangement of the filler and binder elements on the processes of thermal conductivity in the primitive cells of the structural elements of fiberglass plastics. It was found that two- and three-dimensional electrothermal modeling can be used to refine the results of formal analysis.

1/1

- 75 -

USSR

UDC 621.373.421.1(088.8)

KITAYGORODSKIY, Yu. I., BELOUSOV, N. A., SHLENSKIY, Ye. M., VOLODIN, V. P.

"A Magnetostriction Converter With Acoustic Feedback"

USSR Author's Certificate No 148609, Filed 28 Jul 61, Published 16 Mar 70 (from  
RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D376 P)

Translation: This Author's Certificate introduces a magnetostriction converter with acoustic feedback for automatically tuning the frequency of a self-oscillator to the mechanical resonance frequency of the converter. In order to obtain feedback voltage sufficient for direct excitation of oscillator tubes with a power of 5-15 kW without additional signal amplification, and to increase operational stability, the converter packet is made in the form of three electrically and magnetically independent elements which have the same natural resonance frequency. Two of these elements form the active link of the converter while the third, which is placed between them, produces the acoustic feedback voltage. Also introduced is a converter which differs from the one described above in that the phase relationships between the excitation and feedback voltages are maintained throughout the working frequency range of the converter by connecting the active elements and acoustic feedback element to the transmitting system of the converter in the same plane perpendicular to the direction of propagation of longitudinal oscillations of the system. The proposed magnetostriction converter may be used in self-oscillator circuits with automatic frequency control, for instance in ultrasonic oscillators which operate with welders. V. P.

1/2 013 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--EFFICIENCY OF METAL PROTECTION WHEN WELDING WITH A FLUX CORED ROD  
-U-  
AUTHOR--(02)-PEKHODNYA, I.K., SHLEPAKOV, V.N.  
COUNTRY OF INFO--USSR  
SOURCE--AVTOMAT. SVARKA. FEB. 1970, (2), 10-12  
DATE PUBLISHED--FEB70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--NITROGEN, METAL CONTAINING GAS, GAS CONTAINING METAL, WELDING  
ELECTRODE, SHIELDED ARC WELDING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0314 STEP NO--UR/0125/70/000/002/0010/0012  
CIRC ACCESSION NO--AP0124073  
UNCLASSIFIED



2/2 013

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124073

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RELATIVE EFFICIENCIES OF VARIOUS METHODS OF PROTECTING HOT METAL PARTS FROM ATTACK BY THE SURROUNDING AIR DURING ARC WELDING ARE DISCUSSED, WITH SPECIAL REF. TO THE USE OF FLUX CORED WELDING RODS OF VARIOUS TYPES (TUBULAR, DOUBLE LAYERED, ETC.). THE DOUBLE LAYERED TYPE, IN PARTICULAR, IS VERY EFFICIENT IN PREVENTING THE ENTRY OF N INTO THE WELD METAL; IT IS EQUIVALENT IN THIS RESPECT TO COATED ELECTRODE WIRES.

UNCLASSIFIED

Miscellaneous

USSR

UDC 669.3.042.62

DMITRIYEVA, G. S., SHLEPTSOV, V. E.

"Melting and Casting of Nonferrous Metals and Alloys"

Plavka i Lit'ye Tsvetnykh Metallov i Splavov [English Version Above], (Works of Scientific Research and Planning Institute for Alloys and Processing of Nonferrous Metals, No 35), Moscow, Metallurgiya Press, 1971, 144 pages (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G343.K by S. Krivonosova).

Translation: Problems of the theory and technology of casting nonferrous metals and their alloys (basically Cu) are studied: new technological processes of melting and casting; intensification of the process; reduction of irretrievable losses; creation of new processes of continuous casting of ingots; vacuum melting of Cu, Ni, and their alloys. Results are presented from scientific research work on the improvement of technologies, investigation of heredity of cast structure, and development of technologies for the production of products with controllable structure and properties. Problems of automation of regulation of the metal level in a crystallizer during continuous casting and use of the method of rank correlation to study crystallization of Cu ingots are studied.

1/1

SHLEYFMAN, B.A.

SPRS 59208  
6.73

### III-7. GROWTH OF SINGLE CRYSTALS OF INDIUM ANTIMONIDE IN A ROTATING CONTAINER

[Article by A. N. Kirgintsev, B. A. Shleyfman, Yu. A. Babin, Novosibirsk; III Symposium on Problems of Growth of Single Crystals, Novosibirsk, Kirenskiy, I. P. (Ed.), Novosibirsk, 12-17 June, 1972, p. 31]

The given paper is a component part of the experimental studies to apply the method of a rotating container to grow single crystals of semiconductors and other substances.

Single crystals of indium antimonide were obtained for the first time in a rotating container by zone melting.

The basic required conditions of growing the single crystals of indium antimonide in a rotating container were found.

The law of variation of the angle of inclination of the container on growth of single crystals by zone melting is described mathematically. The mechanism of programmed variation of the angle of inclination has been constructed.

Single crystals of indium antimonide which are homogeneous in volume have been obtained using zone equalization.

USSR

UDC 613.646

SHLEYMAN, F. M., ZHIRNOVA, G. Ye., ZELENTSOVA, S. P., MARCHENKO, TASHKER, I. D.  
and MOKROTOVAROVA, G. N., Kiev Institute of Industrial Hygiene and Occupational  
Diseases

"Hygienic Assessment of the Effects of Exposure to Heat"

Moscow, Gigiyena Truda i Professional'nyye Zaboлевaniya, No 3, 1973, pp 12-15

Abstract: Rabbits and rats exposed to infrared radiation at the rate of kcal/m<sup>2</sup>/hour for varying lengths of time exhibited changes in body weight, behavior, immunological reactivity (decrease in antibody titers and phagocytic activity of leukocytes), hormonal activity, tissue respiration in the liver and skeletal muscles, oxidative phosphorylation, etc. The magnitude of the changes varied with the duration and nature of the exposure (continuous or intermittent), intensity of radiation, relationship between time of irradiation and rest periods, etc. Infrared radiation also brought about changes in humans. The heart rate, blood pressure, body temperature, etc. were affected, the degree varying mainly with the intensity and duration of exposure, and the length of the interval between exposures.

1/1

- 66 -

USSR

UDC 576.75.008:612.012.44

SHLEYFMAN, F. M., and ZELENISOVA, S. P., Kiev Scientific Research Institute of Labor Hygiene and Occupational Diseases, Kiev

"Effect of Infrared Radiation on the State of the Organism During Physical Work"

Kiev, Vrachebnoye Delo, No 12, Dec 72, pp 109-112

Abstract: The effects on the state of the organism of IR irradiation during physical work involving muscular effort were studied. Continuous irradiation with 300 kcal/m<sup>2</sup> hr at an intensity of 0.5 cal/cm<sup>2</sup> min during an hour or intermittent irradiation with the same amount of radiation per hour, but at intensities of 1.0 and 3.0 cal/cm<sup>2</sup> min for 30 and 10 min during the hour, respectively, was applied. The skin and body temperature of the subjects was increased. Under the effect of intermittent irradiation, the frequency of cardiac contractions increased in direct relation to the frequency with which periods of irradiation alternated with periods between them. Muscular strength, coordination, and the tolerance to the maximum static strain decreased under the effect of irradiation, with the indexes of muscular effort being affected to a greater extent at increasing frequencies of irradiation. The tolerance to the maximum static strain deteriorated to the greatest extent.

1/1

USSR

SHLEYNIKOV, V. I., KALASHNIK, B. A.

"Organization of Archives in the OSF-1 Operational System for the M-222 Machine"

Vychisl. Mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Technology -- Collection of Works], No 3, Khar'kov, 1972, pp 136-140 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V644, by the authors).

Translation: The organization of a magnetic tape archive is described within the framework of the OSF-1 operational system, developed at the computer center of the Institute of Physics and Technology, Academy of Sciences, UkSSR. This operational system allows operation from a remote terminal as a batch of jobs runs through the machine. The terminal operations require a simple but effective method of accumulation, storage and calling of large files of information: programs, data, etc. The magnetic tape archive basically satisfies these requirements. The article describes the general organization of the archive and access instructions. Examples of operation with the archive are presented.

1/1

1/2 022

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--INFLUENCE OF VARIOUS FACTORS ON THE COPOLYMERIZATION OF ISOBUTYLENE  
AND ISOPRENE -U-

AUTHOR--(04)-SHLIFER, D.I., KOVALEVA, G.V., SOUSTOVA, N.V., SOKOLOVA, V.M.

COUNTRY OF INFO--USSR

SOURCE--KAUCH REZINA 1970, 29(5), 1-3

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--COPOLYMERIZATION, ISOPRENE, LOW TEMPERATURE EFFECT, ISOBUTENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3008/0975

STEP NO--UR/0138/70/029/005/0001/0003

CIRC ACCESSION NO--AP0138003

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0138003

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT.

ISOBUTYLENE (I) AND ISOPRENE WERE  
COPOLYMD. IN ETCL OR ISOPENTANE (II) AT MINUS 100DEGREES TO MINUS  
30DEGREES. AT SIMILAR TO MINUS 30DEGREES THE MIXT. BECAME HOMOGENEOUS  
AND THE COPOLYMER MOL. WT. AND COMPN. DID NOT DEPEND ON THE SOLVENT. IN  
THE HETEROGENEOUS COPOLYM. AT LESS THAN MINUS 30DEGREES THE MOL. WT. OF  
THE COPOLYMER OBTAINED IN II WAS 3-3.5 TIMES LARGER THAN THAT OBTAINED  
IN ETCL. THE CHANGES OF THE SOLVENT AND TEMP. VARIED THE AMT. OF I  
UNITS IN THE COPOLYMER FROM 4 TO 10PERCENT VOL. WITHOUT ALTERING ITS  
MOL. WT. FACILITY: VSES. NAUCH-ISSLED. INST. SIN. KAUCH. IM.  
LEBEDEVA, LENINGRAD, USSR.

UNCLASSIFIED



1/2 021  
TITLE--ISOBUTYLENE POLYMERS OR COPOLYMERS -U- UNCLASSIFIED  
PROCESSING DATE--13NOV70  
AUTHOR--(04)-LIVSHITS, I.A., SHLIFER, D.I., KOVALEYA, G.V., SOUSTOVA, N.V.  
COUNTRY OF INFO--USSR  
SOURCE--U.S.S.R. 265,443  
REFERENCE--OTKRYTIYA, IZOBRET., PRGM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--09MAR70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ISOBUTENE, POLYMER, COPOLYMER, ISOPRENE, ALUMINUM HALIDE,  
CATALYTIC POLYMERIZATION, CHEMICAL PATENT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3002/1417  
STEP NO--UR/0482/70/000/000/0000/0000  
CIRC ACCESSION NO--AA0128816  
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128816

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. ISOBUTYLENE POLYMERS OR COPOLYMERS  
ARE PREPD. BY POLYMG. OR COPOLYMG. WITH, E.G., ISOPRENE IN A POLAR OR  
NONPOLAR HYDROCARBON SOLVENT AT MINUS 30 TO MINUS 100DEGREES BY USING AL  
HALIDE BASED CATALYSTS. TO OBTAIN END PRODUCTS WITH A SPECIFIED MOL.  
WT. FRACTION, THE POLYMER. PROCESS IS CARRIED OUT IN THE PRESENCE OF  
2,4,4,TRIMETHYL,1,PENTENE.

UNCLASSIFIED

USSR

SHLIFER, E.D., DEBELOV, D.T.

UDC 621.385.64

"Subexcitation Of Coaxial Magnetron By Exterior Microwave Signal"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1971, Issue 6, pp 3-8 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10A155)

Translation: The experimental results are presented of subexcitation of a coaxial magnetron by an exterior signal. It is shown that in a subexcitation regime the rate of buildup of high-frequency oscillations is increased several-fold at the level of the subexciting signal and at 40-50 db below the output. In a regime of regenerative amplification a coaxial magnetron has a considerably larger amplification factor than the classical analog. The band of the frequencies of subexcitation and regenerative amplification is determined not by a decrease of power but by the level of the fluctuations of the front of the high-frequency pulse. 5 ref. Summary.

1/1

USSR

UDC 621.396.61:612.817.794(006.6)

KOROVYANET, B. A., KOTBA, N. Ye., SHLIPER, I. I., KHEZEL'NICHKIY, S. Ya.

"A Device for Checking the Vibration Resistance of the Carrier Frequency of SHF Oscillators"

USSR Author's Certificate No 255378, Filed 2 Aug 66, Published 6 Apr 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D435 P)

Translation: This Author's Certificate introduces a device for checking the vibration resistance of the carrier frequency of SHF oscillators. The device contains an SHF receiver with frequency discriminator, an oscillograph and an external sweep oscillator for the oscillograph. To improve the accuracy of determining the frequency of vibrations of the SHF oscillator, the sweep oscillator is a vibropickup of the first harmonic of the vibration frequency mounted on the table of the vibrostand. V. P.

1/1

USSR

GADZHIYEV, A. R., RYVKIN, S. M., and SHLIMAK, I. S. Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR

"n-Germanium Compensated by Fast Neutrons as an Amorphous Semiconductor Model"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 10, 20 May 72, pp 605-608

Abstract: The authors studied the use of fast neutron-irradiated, heavily doped n-type germanium for the creation of a controlled amorphous semiconductor model. n-Ge specimens with an arsenic concentration of  $8 \cdot 10^{18} \text{ cm}^{-3}$  underwent the fast-neutron irradiation. The results indicate that the irradiated n-germanium displays the principal features inherent in an amorphous semiconductor and in this sense can be considered as its model. The authors thank B. I. SHKLOVSKIY for discussing the results.

1/1

USSR

UDC 621.315.592

SAFAROV, V. I., TITKOV, A. N., SHLIMAK, I. S.

"Effect of Alloying on the Exciton States in Germanium at 4.2°K"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 5, No 4, April 1971, pp 771-774

Abstract: It has been demonstrated previously that with an increase in alloying in semiconductor crystals, disturbance of the exciton state arises either from the screening effect in the case of high concentrations of free carriers (uncompensated crystals at high temperature) or by ionization of the exciton in the electric fields of the admixed ions (strongly compensated crystals). This paper contains a study of the effect of both factors on the exciton state for crystals with a different degree of compensation at low temperature (4.2°K) where the movement of the carriers is realized in the admixture band. The studies were performed on germanium in the region of the indirect absorption edge. Data on the variation of the amplitude of the exciton maximum as a function of the charged admixture concentration in compensated germanium and the amplitude of the exciton maximum as a function of the concentration of the basic admixture in compensated and uncompensated germanium are plotted.

1/2

USSR

UDC: None

GROSS, Ye. F., SAFAROV, V. I., TITKOV, A. N., and SHLIMAK, I. S.

"Observation of Excited States and Experimental Determination of Energy Coupling in Indirect Excitons in Germanium"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol. 13, No. 7, 5 April 1971, pp 332-336

Abstract: This letter describes experimental research in the method of long-wave spectrum differentiation for determining exciton structure in the region of indirect absorption in germanium. This method is highly sensitive and, in addition to permitting observation of transitions of the excitons to the basic state with the participation of all four crystalline phonons (TA, LA, LO, and TO), will detect transitions from  $n = 2$  to the excited state. As a result of this method, the value of the Rydberg exciton has been experimentally obtained and the coupled energy of the least level  $E_{ex} = 0.0036 \pm 0.0003$  ev of the indirect exciton in germanium found for the first time. The differential spectra were obtained with a special spectrometer in which a rotating mirror, placed in front of the output slot of a monochromator and set to rotating at a rate of 73 Hz, produces a light beam modulated at that same frequency which is incident on the crystal and then is fed to a light sensor.

1/1

- 73 -

1/2 018  
TITLE--INSULIN LEVEL, DETERMINED BY A RADIOIMMUNOLOGICAL METHOD, IN THE  
PLASMA OF PATIENTS WITH DIABETES MELLITUS -U-  
AUTHOR--SHLIMOVICH, P.B. S  
COUNTRY OF INFO--USSR  
SOURCE--PROBL. ENDOKRINOL. 1970, 16(2), 45-8  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--DIABETES MELLITUS, INSULIN, MEASUREMENT, OBESITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1996/0941

STEP NO--UR/0502/70/016/002/0045/0048

CIRC ACCESSION NO--AP0118107

UNCLASSIFIED



2/2 018

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118107

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INSULIN LEVEL IN BLOOD OF PATIENTS WITH DIABETES MELLITUS OR OBESITY AND OF HEALTHY PEOPLE WAS DETD. BY A RADIOIMMUNOL. METHOD. IN PATIENTS WITH DIABETES MELLITUS THE SENSITIVITY OF PERIPHERAL TISSUES TO INSULIN WAS DECREASED AND THE PLASMA LEVEL OF INSULIN WAS INCREASED REGARDLESS OF THE EXCESSIVE WT.

FACILITY: LAB. FIZIOL. PATOL. ENDOKRIN. SISTEMY CHELOVEKA, INST. FIZIOL. IM. PAVLOVA, LENINGRAD, USSR.

UNCLASSIFIED

UDC 577.37+612.014.428

USSR

GULYAYEV, P. I., ZABOTIN, V. I., ~~SHLIPPENBAKH, N. Ya.~~, and GORDIYENKO, V. A.,  
Laboratory of Physiological Cypernetics, Leningrad State University

"Recording the Electric Fields of Insects in Free Flight"

Moscow, Doklady Akademii Nauk SSSR, Vol 191, No 3, 1970, pp 699-701

Abstract: A brief description is given of a screened metal chamber for recording the electric fields of bumblebees, wasps, flies, and mosquitoes. Results of studies of the insects in their natural habitat were the same as those obtained in the screened chamber, despite the absence of artificial conditions and the unlimited freedom enjoyed by the insects. Thus, the proposed screened chamber appears to be a convenient device for investigating triboelectricity and its possible informational role in insects.

1/1

- 3 -

UDC 621.394.2

USSR

SHLOMA, A. M.

"Two-Step Procedure for Detecting Signals in Normal Noise of Unknown Power"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 10, 1972, pp 2064-2070

Abstract: A study was made of the amplitude and phase successive detection criteria for a deterministic signal against a background of normal noise under the condition of constancy of the probability of false alarm and independence of the minimum probability of correct detection with respect to the unknown noise power. The situation is considered where the complex hypothesis is proved that the sample belongs to normal distribution  $N(\mu_0, \sigma^2)$  with the mean  $\mu_0$  and unknown dispersion  $\sigma^2$  (this distribution corresponds to the noise) as opposed to the alternative that the sample belongs to normal distribution  $N(\mu, \sigma^2)$  with mean  $\mu > \mu_u$  which corresponds to the distribution of the signal and noise. Inasmuch as the dispersion  $\sigma^2$  enters into the probability distribution density it participates in all the calculations employed to check the hypothesis. In order to exclude the effect of the interfering parameter  $\sigma$  the Stein statistic is used [C. Stein, Ann. Math. Statistics, No 16, 243, 1945; Yu. V. Linnik, Statisticheskiye zadachi s meshayushchimi parametrami, Nauka Press, 1966]. Use 1/2

1/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--HYDROGENATION OF SOYBEAN OIL ON PALLADIUM CATALYSTS ON CLAY  
CARRIERS -U-  
AUTHOR-(02)-SHLOTGAUER, I.V., NADIROV, N.K.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., PISHCH. TEKHNOL. 1970, (2), 138-40  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--LEGUME CROP, VEGETABLE OIL, CATALYTIC HYDROGENATION, METAL  
CATALYST, PALLADIUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3008/0151 STEP NO--UR/0322/70/000/002/0138/0140  
CIRC ACCESSION NO--AT0137295  
UNCLASSIFIED